

## ABSTRACT OF THE DISCLOSURE

A multi-modality imaging system that can be utilized in the volume computed  
5 tomography (VCT) mode, the single photon emission computed tomography (SPECT)  
mode and the positron emission tomography (PET) mode is disclosed. In the VCT  
mode of operation, three (3) x-ray sources and associated detectors can be utilized. In  
the SPECT and PET modes of operation, the gamma radiation is provided by an isotope  
ingested by the patient and is detected by the detectors angularly spaced around the  
10 patient. A fused imaging analysis and computer aided diagnosis system is provided and  
processes the images produced by the multi-modality imaging system. The fused  
images are analyzed and the fused image data are compared with disease process  
models to provide feedback to the patient and medical professionals in the form of four  
dimensional displays and interactive image visualizations.

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